

CLAIMS

What is claimed is:

1. An isolated polypeptide selected from the group consisting of:
 - (a) a polypeptide comprising amino acid residues 19-45 of SEQ ID NO:2;
 - (b) a polypeptide comprising amino acid residues 18-45 of SEQ ID NO:2;
 - (c) a polypeptide comprising amino acid residues 1-45 of SEQ ID NO:2;
 - (d) a polypeptide comprising amino acid residues 60-149 of SEQ ID NO:2;
 - (e) a polypeptide comprising amino acid residues 46-149 of SEQ ID NO:2;
 - (f) a polypeptide comprising amino acid residues 19-149 of SEQ ID NO:2;
 - (g) a polypeptide comprising amino acid residues 18-149 of SEQ ID NO:2;
 - (h) a polypeptide comprising amino acid residues 1-149 of SEQ ID NO:2; and
 - (i) a polypeptide comprising amino acid residues 18-459 of SEQ ID NO:2.

2. An isolated polypeptide according to claim 1, wherein said polypeptide further comprises a moiety selected from the group consisting of: affinity tags, toxins, radionucleotides, enzymes, and fluorophores.

3. A fusion protein comprising a first portion and a second portion joined by a peptide bond, said first portion consisting of a polypeptide selected from the group consisting of:

- (a) a polypeptide comprising amino acid residues 19-45 of SEQ ID NO:2;
 - (b) a polypeptide comprising amino acid residues 18-45 of SEQ ID NO:2;
 - (c) a polypeptide comprising amino acid residues 1-45 of SEQ ID NO:2;
 - (d) a polypeptide comprising amino acid residues 60-149 of SEQ ID NO:2;
 - (e) a polypeptide comprising amino acid residues 46-149 of SEQ ID NO:2;
 - (f) a polypeptide comprising amino acid residues 19-149 of SEQ ID NO:2;
 - (g) a polypeptide comprising amino acid residues 18-149 of SEQ ID NO:2;
 - (h) a polypeptide comprising amino acid residues 1-149 of SEQ ID NO:2; and
 - (i) a polypeptide comprising amino acid residues 18-459 of SEQ ID NO:2;
- and

said second portion comprising another polypeptide.

4. A fusion protein according to claim 3, wherein said second portion is a collagen-like domain or a CIQ domain from an adipocyte complement related protein.

5. An isolated polypeptide according to claim 1, wherein the polypeptide is selected from the group consisting of:

- (a) a polypeptide consisting of amino acid residues 19-45 of SEQ ID NO:2;
- (b) a polypeptide consisting of amino acid residues 18-45 of SEQ ID NO:2;
- (c) a polypeptide consisting of amino acid residues 1-45 of SEQ ID NO:2;
- (d) a polypeptide consisting of amino acid residues 60-149 of SEQ ID NO:2;
- (e) a polypeptide consisting of amino acid residues 46-149 of SEQ ID NO:2;
- (f) a polypeptide consisting of amino acid residues 19-149 of SEQ ID NO:2;
- (g) a polypeptide consisting of amino acid residues 18-149 of SEQ ID NO:2;
- (h) a polypeptide consisting of amino acid residues 1-149 of SEQ ID NO:2;

and

- (i) a polypeptide consisting of amino acid residues 18-459 of SEQ ID NO:2.

6. An isolated nucleic acid molecule encoding a polypeptide selected from the group consisting of:

- (a) a polypeptide comprising amino acid residues 19-45 of SEQ ID NO:2;
- (b) a polypeptide comprising amino acid residues 18-45 of SEQ ID NO:2;
- (c) a polypeptide comprising amino acid residues 1-45 of SEQ ID NO:2;
- (d) a polypeptide comprising amino acid residues 60-149 of SEQ ID NO:2;
- (e) a polypeptide comprising amino acid residues 46-149 of SEQ ID NO:2;
- (f) a polypeptide comprising amino acid residues 19-149 of SEQ ID NO:2;
- (g) a polypeptide comprising amino acid residues 18-149 of SEQ ID NO:2;
- (h) a polypeptide comprising amino acid residues 1-149 of SEQ ID NO:2; and
- (i) a polypeptide comprising amino acid residues 18-459 of SEQ ID NO:2.

7. An isolated nucleic acid molecule encoding a polypeptide according to claim 6, wherein said polypeptide further comprises a moiety selected from the group consisting of: affinity tags, toxins, radionucleotides, enzymes, and fluorophores.

8. A nucleic acid molecule encoding a fusion protein comprising a first portion and a second portion joined by a peptide bond, said first portion consisting of a polypeptide selected from the group consisting of:

- (a) a polypeptide comprising amino acid residues 19-45 of SEQ ID NO:2;
 - (b) a polypeptide comprising amino acid residues 18-45 of SEQ ID NO:2;
 - (c) a polypeptide comprising amino acid residues 1-45 of SEQ ID NO:2;
 - (d) a polypeptide comprising amino acid residues 60-149 of SEQ ID NO:2;
 - (e) a polypeptide comprising amino acid residues 46-149 of SEQ ID NO:2;
 - (f) a polypeptide comprising amino acid residues 19-149 of SEQ ID NO:2;
 - (g) a polypeptide comprising amino acid residues 18-149 of SEQ ID NO:2;
 - (h) a polypeptide comprising amino acid residues 1-149 of SEQ ID NO:2; and
 - (i) a polypeptide comprising amino acid residues 18-459 of SEQ ID NO:2;
- and

said second portion comprising another polypeptide.

9. A nucleic acid molecule encoding a fusion protein according to claim 8, wherein said second portion is a collagen-like domain or a C1Q domain from an adipocyte complement related protein.

10. An isolated nucleic acid molecule according to claim 6, wherein the nucleic acid molecule encodes a polypeptide selected from the group consisting of:

- (a) a polypeptide consisting of amino acid residues 19-45 of SEQ ID NO:2;
- (b) a polypeptide consisting of amino acid residues 18-45 of SEQ ID NO:2;
- (c) a polypeptide consisting of amino acid residues 1-45 of SEQ ID NO:2;
- (d) a polypeptide consisting of amino acid residues 60-149 of SEQ ID NO:2;
- (e) a polypeptide consisting of amino acid residues 46-149 of SEQ ID NO:2;
- (f) a polypeptide consisting of amino acid residues 19-149 of SEQ ID NO:2;

- (g) a polypeptide consisting of amino acid residues 18-149 of SEQ ID NO:2;
- (h) a polypeptide consisting of amino acid residues 1-149 of SEQ ID NO:2;

and

- (i) a polypeptide consisting of amino acid residues 18-459 of SEQ ID NO:2.

11. An isolated nucleic acid molecule selected from the group consisting of:

- (a) a nucleic acid molecule consisting of nucleotides 56-136 of SEQ ID NO:1;
 - (b) a nucleic acid molecule consisting of nucleotides 53-156 of SEQ ID NO:1;
 - (c) a nucleic acid molecule consisting of nucleotides 2-156 of SEQ ID NO:1;
 - (d) a nucleic acid molecule consisting of nucleotides 179-448 of SEQ ID NO:1;
 - (e) a nucleic acid molecule consisting of nucleotides 137-448 of SEQ ID NO:1;
 - (f) a nucleic acid molecule consisting of nucleotides 56-448 of SEQ ID NO:1;
 - (g) a nucleic acid molecule consisting of nucleotides 53-448 of SEQ ID NO:1;
 - (h) a nucleic acid molecule consisting of nucleotides 2-448 of SEQ ID NO:1;
 - (i) a nucleotide molecule consisting of nucleotides 2-1378 of SEQ ID NO:1;
- and
- (j) a nucleic acid molecule consisting of SEQ ID NO:3 or SEQ ID NO:7.

12. An expression vector comprising the following operably linked elements:
a transcription promoter;
a DNA segment encoding a polypeptide with an amino acid sequence consisting of:

- (a) amino acid residues 19-45 of SEQ ID NO:2;
- (b) amino acid residues 18-45 of SEQ ID NO:2;
- (c) amino acid residues 1-45 of SEQ ID NO:2;
- (d) amino acid residues 60-149 of SEQ ID NO:2;
- (e) amino acid residues 46-149 of SEQ ID NO:2;
- (f) amino acid residues 19-149 of SEQ ID NO:2;

- (g) amino acid residues 18-149 of SEQ ID NO:2;
- (h) amino acid residues 1-149 of SEQ ID NO:2 and
- (i) a polypeptide consisting of amino acid residues 18-459 of SEQ ID NO:2;
- and
- a transcription terminator.

13. An expression vector according to claim 12, further comprising a secretory signal sequence operably linked to the DNA segment.

14. A cultured cell into which has been introduced an expression vector according to claim 12, wherein the cell expresses a polypeptide encoded by said DNA segment.

15. A method of producing a polypeptide comprising:
culturing a cell according to claim 14; and isolating the polypeptide produced by the cell.

16. A method of producing an antibody to a polypeptide comprising:
inoculating an animal with a polypeptide selected from the group consisting of:

(a) a polypeptide consisting of 9 to 252 amino acids, wherein the polypeptide is a contiguous sequence of amino acids in SEQ ID NO:2 from amino acid residue 1 to amino acid residue 459;

- (b) a polypeptide consisting of amino acid residues 19-45 of SEQ ID NO:2;
- (c) a polypeptide consisting of amino acid residues 18-45 of SEQ ID NO:2;
- (d) a polypeptide consisting of amino acid residues 1-45 of SEQ ID NO:2;
- (e) a polypeptide consisting of amino acid residues 60-149 of SEQ ID NO:2;
- (f) a polypeptide consisting of amino acid residues 56-149 of SEQ ID NO:2;
- (g) a polypeptide consisting of amino acid residues 19-149 of SEQ ID NO:2;
- (h) a polypeptide consisting of amino acid residues 18-149 of SEQ ID NO:2;

(i) a polypeptide consisting of amino acid residues 1-149 of SEQ ID NO:2;
and

(j) a polypeptide consisting of amino acid residues 18-459 of SEQ ID NO:2;
and

wherein the polypeptide elicits an immune response in the animal to produce
the antibody; and

isolating the antibody from the animal.

17. An antibody produced by the method of claim 16, which binds to a
polypeptide of SEQ ID NO:2.

18. An antibody according to claim 17, wherein said antibody is selected
from the group consisting of:

- (a) polyclonal antibody;
- (b) murine monoclonal antibody;
- (c) humanized antibody derived from b);
- (d) an antibody fragment; and
- (e) human monoclonal antibody.

19. An antibody fragment according to claim 18, wherein said antibody
fragment is selected from the group consisting of F(ab'), F(ab), Fab', Fab, Fv, scFv, and
minimal recognition unit.

20. An anti-idiotypic antibody that specifically binds to said antibody of
claim 17.

21. An antibody that specifically binds to a polypeptide of claim 1.